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ABSTRACT

The importance of basing any school renovation on a thorough examination of the district educational philosophy and needs is stressed throughout the abstracts in this digest. Fourteen annotations from documents and journals in the ERIC system discuss why, when, and how to remodel schools. An additional 18 brief annotations about school renovation are contained in a supplementary bibliography. (MLP)

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BUILDING RENOVATION AND MODERNIZATION

EDUCATIONAL
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BUILDING RENOVATION AND MODERNIZATION

At first glance it appears that the revitalization of buildings can be treated from two distinct angles—there are buildings that are currently used for education but are for some reason inadequate, and there is “found space” in buildings that were never intended for educational use. Although these two types of facilities are often separated in the literature, it takes only a brief introduction to the topic to realize that they must be treated in basically the same way. The tendency to give found space insufficient thought is one of the prime problem areas identified by Meier.

Rather than starting with the space, the school district must start with an educational philosophy. As Risetto points out, assuming that a renovation project is an isolated matter can lead to serious investments in space that is fast becoming inadequate, and the new construction could even help build that inadequacy in! When a district is aware

of its educational needs, it can plan its moves successfully.

The next step is to analyze current space, whether it is in the district's hands or is found elsewhere. How well does it meet the needs that have been determined? How adaptable is it to needs that may come up in the future? What kind of shape is the building in, and what can be expected of the electrical, mechanical, and heating, ventilating, and cooling systems? Does it meet building codes? How much would it cost to bring it up to desirable standards, as compared with new construction?

If a building shows itself to be a viable candidate for modernization or renovation, the next question is what to do with it. Suggestions from professional consultants, local administrators, teachers, the maintenance staff, and even elementary students can give insight into what the building could be. But it is important not to stop there. Consideration

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must be given not only to ideas that have developed from past experience but to new innovations as well.

- Perhaps the handicapped have never been adequately served by current spaces. Is it possible that designing spaces not only to eliminate barriers but to actually encourage easy use could benefit the average student and staff member as well?
- Perhaps the budget for maintenance must be held down. Spending a few more dollars now for equipment and space that will assure easy maintenance may save tremendously in labor and time costs over the life of the building.
- Perhaps fuel costs in your area have been climbing out of reach. Are there functional ways of taking advantage of the climate without having to put up with its shortcomings? Renovation is the ideal time to work on reducing energy consumption.
- Perhaps vandalism is a major problem. Could modernization make the building more useful for community purpose, and encourage night use? Attention to the psychological attraction of different surfaces, according to a source cited by Clarke, could channel nonmalicious vandalism into areas where it will cause the least harm and expense.
- Perhaps an old railroad station or other building in your city is threatened with demolition, despite its architectural and historical significance. Will its renovation to meet your needs help retain your city's heritage? Extra funding from government and other agencies may be available for just such purposes.

If it is determined that a building currently in use is to be renovated, where will the students be moved? Or must they be moved at all? Keeping them on the site could slow construction and place them in danger, but moving them off the site could cause problems just as severe in other ways, as Heyl points out in one issue of *Schoolhouse*.

And, of course, underlying all other considerations after educational value is the financial factor. Meier argues against the conventional idea that a general formula can be applied in most cases, as far as found space is concerned. The lifespan and educational value of the space must be considered. The

actual costs are likely to be lower than those for new construction in any case, but in terms of the return they could be high indeed.

Renovation of space need not entail major effort or expense, however. The following list includes articles featuring found space converted by student labor at only \$1.40 a square foot, the use of a model home complex leased to a crowded district at \$1 a year, discussions on how to transform traditional classrooms and wings into "enclosed open areas" by making full use of surfaces and space without ever knocking down a wall, and ideas for saving money by installing HVAC units that are complete within each classroom.

Whether projects are extensive, featuring additions, complete reorganization of space, and total modernization of equipment and services, or limited, it cannot be stressed enough that advanced planning is vital. Even for the administrator who is not contemplating renovation, a look at some of these documents and articles may be enough to indicate the potential that exists for future projects, and the planning can be started before the pressures of need come to bear.

Building Systems Information Clearinghouse. *Energy Conservation and the Building Shell. BSIC/EFL Energy Workbook: Section 1.* Menlo Park, California: 1974. 34 pages. ED 094 477.

Increasing energy prices and potential fuel shortages make heating, cooling, and lighting costs an important element in any remodeling or conversion project. According to this document, "increasing the initial expenditure of a construction project in some areas may permit long run real money savings through more economical operations," though some methods may prove more expensive than less efficient ones due to high initial costs.

Such simple features as choosing light-colored surfaces to reflect heat, using double glazing to help insulate, facing glassed areas southwards in areas where heating is a major problem and to the north where cooling is a greater need, adding shading louvers to windows to permit indirect lighting without heat, building on a linear plan to increase exposure to light and reduce air conditioning woes, orienting the building in the landscape in such a way as to take advantage of natural protection against exposure, and so forth, are relatively low-cost projects that offer substantial benefits.

Two examples of actual projects, one new construction and the other a modernization, and sample worksheets indicate how comparisons of different approaches can be made. The four items considered principally are the cost of the building shell elements required, the effect of the decision on the cost of heating, ventilating, and cooling equipment, the effect of the decision on fuel consumption and costs,

and the sum of these three cost factors.

Order copies from BSIC/EFL, 3000 Sand Hill Road, Menlo Park, California 94025, \$3.00.

Also available from EDRS. MF \$0.83 HC \$2.06. Specify ED number.

Clarke, Stephen J. *Recycling School Facilities. Summary of a Conference (Andover, Massachusetts, March 8, 1974).* Newton, Massachusetts: New England School Development Council, 1974. 21 pages. ED 100 027.

Dr. David Moberly's expertise in school management led him to adopt the administrative team approach when the suburban Cleveland school district he had just taken over as superintendent charged him with developing a districtwide modernization plan. Forming parent-teacher-citizen groups to specialize in each aspect of facilities planning assured a knowledgeable resource group as well as aiding public relations. One architect was selected to coordinate the project, with the understanding that all design and construction work was to be done by others. Working together, the team was able to standardize many materials, such as vents, lighting fixtures, and windows, throughout the 16-building system, for substantial savings.

A team approach in Hartford, Connecticut, sponsored by the coordinating architects, gathered together cost consultants and mechanical and structural engineers to study existing facilities and needs. Again the coordinating and project architects were kept distinct. After considering all factors, it was recommended that some buildings be demolished, some refurbished, and some new ones constructed, with emphasis placed on large areas, the use of columns for support, and the elimination of load-bearing walls.

Other conference speeches indicated that found space is available both inside and outside existing buildings, and that even current classroom spaces can be "expanded" in the minds of the occupants by innovative use of floor and wall space and nontraditional furnishings.

Finally, designing school buildings to accommodate "non-malicious vandalism and rough play" can save dollars, headaches, and children's necks. Areas of particular concern are roof access, entrance design, rough play areas, surfaces both inviting and discouraging graffiti, and design of surfaces to reflect the uses to which they will be put.

Order copies from New England School Development Council, 55 Chapel Street, Newton, Massachusetts 02160. \$0.50, members; \$1.00, nonmembers. Order MF from EDRS, \$0.83. Specify ED number.

Cramer, Harold L., and Barnes, James R. "Orienting New Users to New Spaces." *CEFP Journal*, 11, 2 (March-April 1973), pp. 9-11. EJ 077 816.

"While school systems usually develop some sort of routines for planning, equipping and staffing new schools, very few have any real, established procedures for orienting the staff and other personnel who, together with the principal, will ultimately make up the 'school team'." It may be even less usual for procedures to be developed to reorient a preexisting staff to a building that has been modernized beyond recognition.

Cramer and Barnes state that all available resources, both human and material, must be used to make staff orientation

effective. If at all possible, the architects, technical specialists, educators, facilities planners, and manufacturers' representatives should get together before the new building is designed, to agree on how educational goals can best be supported by spaces and equipment. At the very least, before classes actually begin, those who designed the new facility should meet with those who will use it, to explain the full potential of the new surroundings.

Written materials, including philosophy statements, educational specifications, curriculum guides, building plans and specifications, and instruction manuals for new equipment, should be gone over. If time allows, supervised practice sessions can make the staff, from principal to maintenance and custodial crews, familiar and comfortable with the building.

Educational Facilities Laboratories. *Reusing Railroad Stations. A Report.* New York: 1974. 155 pages. ED 093 047.

Singling out railroad stations from other found spaces "because their disappearance is so imminent, because their vigor and ingenuity are so typically American, and because they are a man-made resource of great potential," this beautifully produced report uses both logical and emotional appeals to convince the reader that these monuments to our past have a practical place in our future. Designed for a multiplicity of functions involving great numbers of people, urban stations offer highly varied spaces susceptible to many uses including the educational. In fact, the ubiquitous community center, with educational facilities as one of its components, could find an ideal home in one of these often empty structures.

Obtaining station buildings may prove even more difficult than getting other found space. The land is often valuable, and railroad companies, real estate developers, and even government officials often oppose the idea of reuse, preferring replacement with new structures. But the idea is possible. In 1973 a request for information on reuse brought in 500 examples of current and completed projects, as well as the details on over 1,000 additional available buildings. This report provides case histories of ten such projects ranging in size from whistle-stops to large urban stations, and in age from 50 years to 110. Three of the

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examples contain educational components. Most of the stations were purchased outright, but funding was achieved in a number of ways. Five stations currently in jeopardy are also described.

Additional sections discuss more thoroughly the economic considerations involved (including means of acquisition, governmental and nonprofit funding sources, and private development), the need for federal leadership, and the historical background that makes the railroad station so important a part of our heritage.

Order copies from Educational Facilities Laboratories, Inc., 850 Third Avenue, New York, New York 10022. \$4.00.

Also available from EDRS. MF \$0.83 HC \$8.69. Specify ED number.

Feldman, Edwin B. "Cut Costs and Win Friends by Planning or Remodeling Schools for Easy Maintenance." *Nation's Schools*, 92, 1 (July 1973), pp. 36-38. EJ 079 544.

Consultation with maintenance and custodial staffs before accepting an architect's design for renovation can save a great deal of money over the long run. Feldman makes two principal points—do not try to save money in ways that will increase labor costs, and do try to save labor by investigating new products and designs that can be built into new facilities. As Feldman says, "wages rise much faster than equipment costs and must be paid on a continuing basis."

Major considerations for keeping costs down include providing easily cleaned dirt traps in high traffic areas, avoiding great variations in floor surfacings, mounting wash-room equipment on walls and ceilings, installing sufficient electrical outlets, and providing large and accessible custodial closets to cut back on time spent travelling between supply centers and work areas. Giving adequate consideration to the cleanability of surfaces from floors and walls to lighting fixtures and kitchen ceilings can save time and trouble later, and even reduce staffing needs.

Graves, Ben E. "Remodeling Comes into Its Own at AASA Exhibit." *Nation's Schools*, 93, 3 (March 1974), pp. 64-65. EJ 092 696.

The American Association of School Administrators added a modernization section to their convention's annual architectural exhibits in 1974. To qualify, entries had to change the space configuration to create a new educational environment, to "simply and logically" solve the remodeling problem, and to generally upgrade "furnishings, landscaping and exterior surfaces to present a completely new face to the community."

Two schools that more than met the standards were Orange High School in Ohio and Taylor Elementary in Virginia. The high school project saved one newly added wing of an old school, built new classroom spaces on open land, and demolished older sections of the building after moving the students. The elementary school was of the "finger-wing" design, and the plans called for open-plan learning centers to be built in the courtyards between the wings, while the old central wing became an instructional materials center.

Floor plans for both projects showing location and design of new spaces are included.

Hackensack Public Schools. *Environment and Space Utilization: Project LEM*. Hackensack, New Jersey: Hackensack Public Schools, 1973. 9 pages. ED 106 902.

"When the environment is designed for active learning, less energy and attention is required to maintain order; more concern can be directed at accomplishing human and academic goals—exploring, helping, guiding, and building rather than merely containing." The Learning Experience Module (LEM) project in Hackensack, New Jersey, based its decision to redesign its existing facilities as much on a desire to implement a positive educational philosophy as on a need to relieve overcrowding. Thinking in terms of an ideal environment for teaching as well as learning, planners were able to put their modest budget to the most effective use by transforming a 45-year-old building to the open plan.

Eliminating walls, incorporating former corridors into learning space, and permitting movable furniture made the new area "fluid and open." By achieving the goals of an open plan environment, a 25 percent increase in capacity, and team-teaching capability, "the LEM way is costing less to develop than it's costing other schools in both dollars and program not to do it."

The project was accomplished in three stages, well illustrated in the document, and a new addition was being incorporated as an extra fourth stage when the article was written.

Order copies from Project LEM, Hackensack Public Schools, Hackensack, New Jersey 07601. Free; additional charge for quantity orders.

Order MF from EDRS, \$0.83. Specify ED number.

Heyl, Harry. "The Relocation Plan." New York: Educational Facilities Laboratories. *Schoolhouse*, 16 (April 1974). 16 pages. ED 095 659.

Sometimes careful scheduling is not enough to prevent having to relocate students while doing construction work on their home schools. The questions that must be most carefully addressed when deciding where to put the displaced students involve safety and cost. While keeping students near the home site is usually cheaper in some ways and maintains school integrity, it may interfere with construction and result in danger to the students. On the other hand, construction speed may be improved and insurance and accident rates reduced if the students are transported to other sites.

Heyl presents five plans for onsite relocation and six for offsite, all of which have been tried in districts across the country. The plans vary depending upon the degree of disruption expected, the scale of the project (modernization can involve anything from a room to a district), and the kind of project (renovation, addition, replacement). The ideas include new uses of current space on a temporary basis, extended or double sessions, redrawing attendance boundaries, housing in empty schools, use of portable classrooms, and other possibilities. Advantages and disadvantages are noted for each alternative, and practical examples are drawn from districts that have tried each plan.

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Klepser, James E., editor. *Protected Educational Facilities in Found Space. A Guide to Converting Noneducational Spaces into Safe, Healthful Environments for Education*. Columbus, Ohio: Council of Educational Facility Planners, International, 1973. 44 pages. ED 082 372.

"In times of emergency, people tend to expect school facilities to offer havens or shelters." Buildings must be designed to protect against "floods, earthquakes, tornadoes, civil disturbances, fallout radiation, and even severe weather," not only for the students and staff who occupy them normally, but for the community at large, in addition to meeting general standards of health and safety. The conversion of found space to educational use requires a careful examination of the structure with these extreme conditions in mind as well as the educational uses for which the building is intended.

"Basically, the characteristics of good educational space are adequacy, suitability, safety, healthfulness, flexibility, accessibility, efficiency, economy, expansibility, and pleasantness." Several important questions can be asked to test each characteristic. For example, when considering healthfulness, one question is whether the surrounding environment is suitable. More pointed questions on this particular topic include "Does the neighborhood have adequate lighting? Do nearby industrial plants or other uses give off noxious odors, smoke, and noise? Will traffic present problems? Can all hazards be corrected, removed, or minimized conveniently and economically?" Similar questions are asked regarding each characteristic, and hints of things to take into account are provided, to help planners think critically and specifically about potential problems.

An experienced architect should be hired to make a thorough study of the physical property, including its past history. Code considerations, the basic structure, mechanical and electrical services, health and safety requirements, site conditions, and protection against environmental hazards must be checked in detail, with the age and condition of all materials examined and potential future trouble spots recognized ahead of time.

A brief look at how to figure costs, an overview of environmental hazards, both natural and man-made, and examples of successful conversion efforts round out this thought-provoking document.

Order from EDRS. MF \$0.83 HC \$2.06. Specify ED number.

Kliment, Stephen A. *Into the Mainstream. A Syllabus for a Barrier-Free Environment*. Washington, D.C.: American Institute of Architects, 1975. 51 pages. ED 112 492.

Remodeling provides an excellent opportunity to make school buildings accessible to the handicapped, including the general public as well as students and educators. This document provides insight into the numerous barriers the handicapped face, and ways in which some of these barriers can be reduced or eliminated. Knowing legal standards is probably less important than understanding and trying to meet the needs of the blind, the wheelchair-bound, and other disadvantaged persons.

After a background section describing who the handicapped are and what has been done for them so far, in terms of standards, restrictions, and requirements, the dis-

cussion turns to typical barrier problems. These include parking, approach and entrance barriers, stairs, elevators, floor surfaces, rest rooms and their contents, water fountains, telephones, heat and light controls, window and fire alarm devices, unguarded doors, dangerous protruding signs, and so forth. School areas that are often designed without the handicapped in mind include lecture halls, auditoriums, laboratories, physical education facilities, and the campus grounds.

Kliment describes how and why these and similar problems should be met, and outlines dimensions and specifications that should be considered in design.

Order from EDRS. MF \$0.83 HC \$3.50. Specify ED number.

Martin, Stanley E., and Gould, William A. "Remodeling: What to Look for Before You Start." *American School and University*, 48, 5 (January 1976), pp. 47-51. EJ 129 397.

The authors' architectural firm was selected by the Ohio Board of Regents to form a team to audit 239 buildings built prior to 1960 on seven state campuses. The evaluation covered each building's physical condition, functional suitability, and historic and intangible qualities, as well as a determination of its value, renovation costs, and replacement costs. "Of the buildings evaluated, none was ranked above average, an indication of the extensive building code changes made during the past 10-15 years." Such considerations as the inefficiency of tile floors in toilet rooms, the greater durability of solid core doors, and the tendency of central heating and ventilating systems to receive better maintenance than unitized systems were taken into account.

While the article treats facilities for higher education, its conclusions apply to any collection of buildings. Central, ongoing planning with an eye toward function and toward standardization for cost reduction is suggested for any group of facilities concerned with ease of maintenance and flexibility over the years.

Meier, James Paul. *The Conversion of Found Space for Educational Use*. 1974. 362 pages. ED 101 468.

"Diverse problems regarding educational facilities, such as inflationary costs, enrollment, land use, curricular and space pressures, have led educators to seek alternatives to building new schools." But is the conversion of nonschool buildings an advantageous alternative? Legal inhibitions and a tendency to think of found space as a temporary answer prevent both adequate consideration of such solutions and adequate planning when the use of found space is decided on.

This thorough study considers "such factors as educational program, physical environment, building codes, cost and financing, legal issues, administrative processes and time, and political and social concerns" in examining the situation in New York State. An analysis of empirical data revealed that conventional wisdom was gravely flawed. A belief that use of found space was relatively infrequent was proved wrong; enough projects have been undertaken to provide a very adequate base for deeper analytical research. And generalized formulas for determining when to convert and when to build were discovered to have no basis in fact—each situation is so unique that no general formulas can

adequately apply.

The most important conclusion drawn was that found space had to be considered just as carefully as new construction. "Creative physical and educational program adaptation is neither inherent in the process nor essential to a satisfactory result in the conversion of found buildings—any more than it is for the planning and construction of a new building."

The project developed a "simulation model . . . for projecting lifetime costs" of found space when usual analytical techniques were found inadequate. The model is included in the report, as is the computer program used to study the basic data gathered. Some case studies are also offered, with examples from Massachusetts and Pennsylvania added for comparison.

Order from EDRS. MF \$0.83 HC \$19.41. Specify ED number.

Rissetto, Henry J. "Revitalization of Existing Educational Facilities: An Overview." *IAR Research Bulletin*, 15, 2 (January 1975), pp. 1-2, 6-7. EJ 110 988.

"A simple decision to improve a heating plant, to remodel toilets, replace window sashes or plumbing, replace a roof, repaint exterior brick walls or to do other extensive single operations in order to improve a building" can often be the first step in an unintended commitment to revitalize. With one costly project following another in an unplanned sequence, the district may suddenly find itself with a sizeable investment in an educationally inadequate facility. In terms of economy, planning *not* to remodel is just as important as planning *to* remodel.

Rissetto offers a discussion of five interrelated factors that should be considered when determining whether or not to revitalize a school: educational obsolescence, the first consideration; location obsolescence, including population shifts, traffic patterns, and surrounding land use; site obsolescence, which may affect the educational but not the financial value of the location; building structure and services obsolescence, which may shorten the expected life of the facility to the point that any revitalization could not be cost effective; and obsolescence of the physical environment simply as a place for enjoyable human activity.

Despite questionable writing and editing (particularly in the case of unattributed direct quotes and misquotes), especially toward the beginning of this article, Rissetto manages to present some important contributions toward planning.

"Special Report: The Rush to Remodel." *Nation's Schools*, 91, 4 (April 1973), pp. 63-73. EJ 076 219.

Three brief articles and a section on new products suited to remodeling needs are combined in this special report.

Ben E. Graves offers three outstanding examples of "enclosed open space," the remodeling of traditional spaces to achieve open space benefits without major construction. Book nooks, teacher work areas, "arenas" for large-group instruction, and work and project areas for smaller groups can all be arranged to make one room serve many purposes for one class. Another alternative is to make each of several rooms into a subject-oriented learning center where a greater variety of resources can be made available to stu-

dents who may move from room to room. A third approach combines the benefits of the other two by offering some specialized areas while maintaining student identification with a home space and fellow class members in an area where different activities can go on simultaneously.

Architects Brubaker and Sonnenschein added two towers to the outside of a three-story high school to house air conditioning, electrical service lines, and toilets displaced when the building was converted to the open plan. In addition, the towers contained elevators required by state law to provide access to the handicapped. Spaces were redefined and made more flexible in a construction program that concentrated on half a floor at a time without closing the school.

Robert Baumgartner reports on the use of school staff to perform most of the labor on a remodeling project in a 52-year-old elementary school. A ventilating system designed for single-room installation was placed between the original ceiling and a lowered acoustical ceiling without the need for structural modifications.

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SUPPLEMENTARY BIBLIOGRAPHY

"Acme Converted to Temporary School." *American School and University*, 46, 11 (July 1974), pp. 22-23. EJ 102 524. During July and August of 1973, an industrial arts teacher and 15 high school students transformed an old market into an open plan school for 250 primary students at a cost of only \$1.40 per square foot. Suitable doors, a fire safety system, telephones, electrical outlets, toilets, carpeting, outside fencing, and interior work were included.

Ashley, Warren H. "Six Reasons Why You Should Consider 'Recycling' Before Turning to New Construction." *School Management*, 17, 7 (August-September 1973), p. 17. EJ 084 439. Architect Warren H. Ashley offers six reasons to consider recycling rather than new construction: You have the land; you know the site and its effects on your building; streets and utilities are already in place and work-

ing; the basic structure already exists, and work can take place even during the winter; student transportation patterns are understood; and, most importantly, costs are likely to be far less.

Association of Physical Plant Administrators of Universities and Colleges. *Remodeling, Renovation, and Conversion of Educational Facilities.* Washington, D.C.: 1975. 171 pages. ED 114 920. Document not available from EDRS. (Available from Association of Physical Plant Administrators of Universities and Colleges, Suite 525, One Dupont Circle, Washington, D.C. 20036. \$7.50.) A compilation of selected papers presented at workshops on revitalization of physical plants for higher education, offering a different viewpoint on topics discussed in documents cited in the main body of this bibliography.

Baas, Alan M. *Building Renovation and Modernization. Educational Facilities Review Series, Number 4.* Eugene, Oregon: ERIC Clearinghouse on Educational Management, University of Oregon, 1972. 8 pages. ED 061 573 MF \$0.83 HC \$1.67. This review of the literature through the late 1960s provides a background to more recent documents. Twenty-two references are cited, with the New Life for Old Schools Project and the Great Cities Program for School Improvement particularly stressed.

"Beautify the Bedraggled, or How They Recycle Space to End Up with Nice Schools." *The American School Board Journal*, 160, 8 (August 1973), pp. 26-27. EJ 081 201. "We don't need the 'class' and the 'classroom' anymore," says August Gold, member of New York City's board of education. "We're looking for different kinds of spaces." This brief article describes the direction and success of the search that has discovered and developed found space at only 35 to 40 percent of the cost of new buildings.

Benedict, Lowell. "When a Program Changes They Move a Wall." *Industrial Education*, 64, 3 (March 1975), pp. 48-49. EJ 113 703. Vocational-technical education facilities that must respond to local labor demands need to be especially flexible in their design. This brief article describes the first school on the East Coast designed to be extensively and repeatedly remodeled at low cost.

Christensen, Ole. "The Increasing Importance of Renovation." *School Management*, 18, 7 (August-September 1974), pp. 7, 10-11, 14-19. EJ 104 108. Demands for equality in education, the spread of the year-round school concept, and a recent trend toward state support of construction programs have all helped swell the number of modernization projects over recent years. The total value for completed remodeling rose from \$350 million in 1973 to \$510 million in 1974, and starts in 1974 alone will require expenditure of \$740 million. The article consists of a brief summary and a number of tables.

Educational Facilities Laboratories. *Reusing Railroad Stations, Book 2. A Report.* New York: 1975. 61 pages. ED 117 830 MF \$0.83 HC \$3.50. (Also available from Educational Facilities Laboratories, Inc., 850 Third Ave-

nue, New York, New York 10022. \$4.00.) A followup to the report cited earlier, this booklet adds details about some projects mentioned in the first report, discusses the financial and legal implications of converting historical structures to new uses, and lists 30 government agencies that can give financial help.

"Five Remodeling Projects and the Ideas They Offer." *School Management*, 17, 7 (August-September 1973), pp. 18-23. EJ 084 440. Five projects are described and illustrated: the renovation of an old gymnasium into a multi-story science center at a private secondary school; the innovative use of nontraditional supplies and children's design suggestions in a private elementary school on the ground floor of a New York highrise; the use of a former computer plant for a nongraded open school for K-12 students, which takes advantage of its commercial location and is now making its own furniture; the recycling of a junior high and elementary school into a high school complex; and the transformation of 9,000 square feet of abandoned warehouse space into a 200-student school for \$15,000.

Graves, Ben E. "Funny, But It Doesn't Look Schoolish." *Nation's Schools*, 91, 3 (March 1973), pp. 66, 70. EJ 073 061. A concerted effort to approach found space on its own terms can lead to exciting educational areas at extremely low cost, resulting in low rates of vandalism, high attendance, parent involvement, and reduced teacher turnover.

Graves, Ben E. "The Recycled School." *Phi Delta Kappan*, 56, 5 (January 1975), pp. 341-344. EJ 109 247. School modernization projects "can range from minimodernization, to a change of space use, to a complete project where the entire facility is recycled." Graves describes five projects and encourages use of sketches and models to explain ideas to teachers and community members to prompt their responses.

Graves, Ben E. "'Systems' Get a Trial Run in Detroit." *Nation's Schools*, 93, 5 (May 1974), p. 64. EJ 096 055. A very brief article recounts how the Detroit school system came to the realization that "small, one-at-a-time projects can also use certain aspects of systems planning."

Graves, Ben E. "Take Three Tips from West Hartford." *Nation's Schools*, 93, 2 (February 1974), pp. 58-59. EJ 091 271. Illustrated with floor plan sketches, this brief article gives examples of and comments on new approaches to teachers' planning centers, learning resources centers, and early education centers as recommended in a Connecticut district's remodeling project.

Lander, Kathleen. "School in Model Homes." *School Management*, 17, 7 (August-September 1973), p. 37. EJ 084 446. Found spaces need not be large to be effective. Use of seven model homes grouped in a housing development kept a school district from having to begin double sessions in a primary school, at a very low cost. Both students and teachers found the new facilities secure and friendly, and morale and discipline problems were significantly decreased.

"Modernization Gives a Fresh Face and New Uses to Three Already Existing Schools." *School Management*, 18, 7 (August-September 1974), pp. 22-25. EJ 104 109. Three school buildings in Massachusetts, of different ages and facing different enrollment pressures, found modernization and additions the answer to their widely varied problems.

"Pipes at Pine Hill: Additions, Remodeling Change a Building's Personality." *Nation's Schools*, 93, 2 (February 1974), pp. 54-55. EJ 091 270. A short case study of a combined remodeling and addition plan for an elementary school cites answers to four challenges: a small site, a need for revised learning spaces, a wish for building "personality," and a tight budget. One conspicuous feature of the new addition was leaving ductwork exposed and brightly painted, at a cost saving of seventy-five cents a square foot for a 20,000 square foot structure.

Sasserath, Simpson. *From Hotel to High School: Converting a Residential Hotel into a New Type of Senior High School. Report and Recommendations of the Concourse Plaza High School Planning Committee*. New York: New York City Board of Education, 1972. 59 pages. ED 065 935 MF \$0.83 HC \$3.50. The arrangement of rooms and

suites, complete with closets and kitchens on every floor, led planners of this alternative to develop the main school concept, in which students work in a single academic discipline and its related fields half the day and follow a more liberal program during the other half.

"Should We Renovate, Remodel or Demolish? An Interview." *American School and University*, 45, 7 (March 1973), pp. 18-20, 22, 25, 28. EJ 074 570. The most important criterion for two architects when determining the fate of an old school building is whether new construction can economically make the facility flexible enough to respond to conceivable changes in educational styles for many years to come.

Truesdell, William H. "The New Importance of Renovation." *School Management*, 17, 7 (August-September 1973), pp. 12-15. EJ 084 438. A 50-year-old high school in Michigan was converted into a nationally recognized middle school for \$11.18 per square foot in nine months, expanding and opening up many previously constricted areas and taking advantage of unfunctional spaces such as an old second gymnasium.

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